

CLAIMS

What is claimed is:

1. A projector lens system comprising, from a screen
5 side, a first lens unit having negative refractive power
and a second lens unit having positive refractive power,
wherein said first lens unit includes a negative
meniscus lens element being a plastic lens element, being
convex to the screen side and having an aspherical surface,
10 said second lens unit includes: a negative lens
element being a plastic lens element and having an
aspherical surface; and at least two or more positive lens
elements having anomalous dispersibility and a temperature
coefficient of a negative refractive index, and
15 an image plane fluctuation by a temperature change due
to a temperature coefficient of a negative refractive index
of the plastic lens elements of said first and second lens
units is corrected by the temperature coefficient of the
predetermined negative refractive index of said positive
20 lens elements.

2. A projector lens system comprising, from a screen
side, a first lens unit having negative refractive power
and a second lens unit having positive refractive power,
25 wherein said first lens unit includes a plurality of

negative meniscus lens elements including at least one negative meniscus lens element being a plastic lens element of a predetermined refractive index, being convex to the screen side and having an aspherical surface,

5 said second lens unit includes: an aperture stop; a negative lens element being a plastic lens element and having an aspherical surface; and at least two or more positive lens elements having anomalous dispersibility and a temperature coefficient of a negative refractive index,

10 the plastic lens element of said first lens unit is arranged on a side of said aperture stop, and

 an image plane fluctuation by a temperature change due to a temperature coefficient of a refractive index of the plastic lens elements of said first and second lens units
15 is corrected by the temperature coefficient of the predetermined negative refractive index of said positive lens elements.

3. A projector lens system comprising, from a screen
20 side to a projector lens side, a first lens unit having negative refractive power and a second lens unit having positive refractive power,

 wherein said first lens unit includes a negative meniscus lens element being made of plastic, being convex
25 to the screen side and having an aspherical surface,

said second lens unit includes: an aperture stop; and a negative lens element being made of plastic and having an aspherical surface, and

the following conditions are satisfied:

5 $-5 < f_{1p}/f < -3$

$-25 < f_{2p}/f < -15$

where f is an overall focal length of the lens system, f_{1p} is a focal length of the plastic lens element in the first lens unit, and f_{2p} is a focal length of the plastic lens
10 element in the second lens unit.

4. A projector lens system according to claim 3, wherein a positive lens element used in the second lens unit comprises at least two or more glass elements
15 satisfying the following condition:

$$0.03 < P_{g,F} - (0.6482 - 0.0018vd)$$

where $P_{g,F} = (n_g - n_F) / (n_F - n_C)$, $vd = (n_d - 1) / (n_F - n_C)$, n_g is a refractive index to a g-line (wavelength 435.84 nm), n_F is a refractive index to an F-line (wavelength 486.13 nm), n_C
20 is a refractive index to a C-line (wavelength 656.28 nm), and n_d is a refractive index to a d-line (wavelength 587.56 nm).

5. A projector lens system according to claim 3,
25 wherein a positive lens element used in said second

lens unit comprises at least two or more glass elements satisfying the following condition:

$$\Delta n/\Delta T < -5 \times 10^{-6}$$

where $\Delta n/\Delta T$ is a temperature coefficient of a refractive
5 index.

6. A projector lens system according to claim 3,
wherein said first lens unit includes two negative meniscus
lens elements convex to the screen side.

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7. A projector lens system according to claim 6,
wherein the plastic lens element used in said first lens
unit is arranged on a side of the aperture stop.

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8. A projector lens system according to claim 3,
wherein the following condition is satisfied:

$$2.5 < f_{2ep}/f < 5.0$$

where f_{2ep} is a focal length of a positive lens element
included in the second lens unit and f is the overall focal
20 length of the lens system.

9. A projector lens system according to claim 3,
wherein the following condition is satisfied:

$$-5.0 < f_{2gn}/f < -2.0$$

25 wherein f_{2gn} is a focal length of a negative lens element

made of glass and included in the second lens unit and f is the overall focal length of the lens system.

10. A rear-projection-type projector having a
5 projector lens system, wherein as the projector lens system, the projector lens system according to any one of claims 1 to 3 is used.